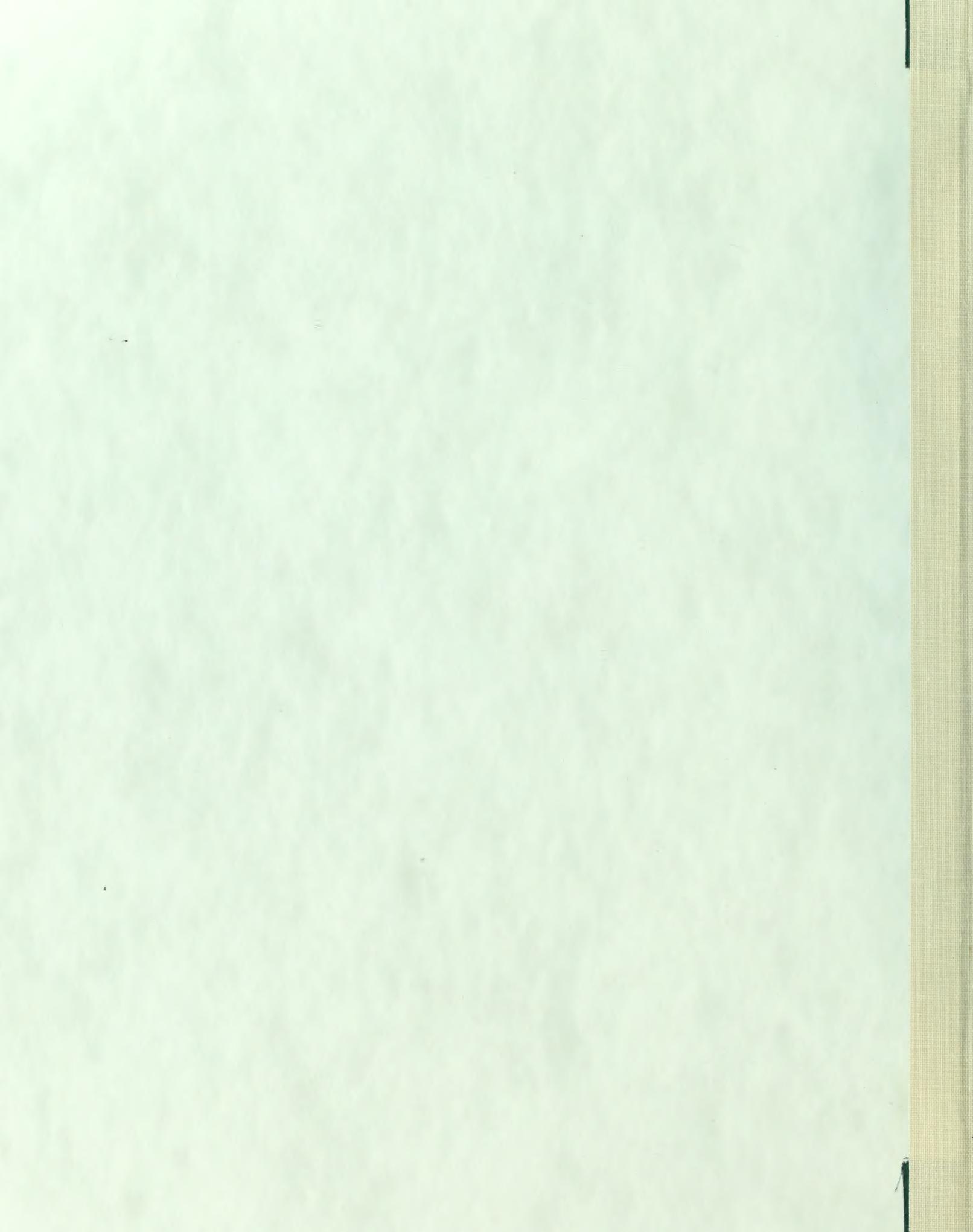


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# ILLINOIS COMMERCIAL SPRAY SCHEDULE

## Apples, Peaches, Nectarines, Apricots, Plums, Pears, and Cherries

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### SUPPLEMENT TO CIRCULAR 1151

UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

COLLEGE OF AGRICULTURE

COOPERATIVE EXTENSION SERVICE

### IN COOPERATION WITH ILLINOIS NATURAL HISTORY SURVEY

Issued in furtherance of Cooperative Extension Work, Acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture. JOHN B. CLAAR, Director, Cooperative Extension Service, University of Illinois at Urbana-Champaign. The Illinois Cooperative Extension Service provides equal opportunities in programs and employment.

January, 1980 (2700—1-80—46530—RES)

## APPLES

APPLICATION AND PURPOSE	MATERIALS, RATE PER 100 GALLONS OF WATER	SPECIAL SUGGESTIONS
<b>DORMANT TO GREEN TIP</b>  Scale insects, aphids, and red mites Scab	SUPERIOR OIL, 2 gal.  DIFOLATAN 4F, 3 qt. or 5 qt.	Thorough coverage is the most important factor. Varieties susceptible to powdery mildew should be sprayed in dormant if a mildewicide is to be used in $\frac{1}{2}$ -inch stage. Application at the 5-qt. rate during silver tip but before $\frac{1}{4}$ -inch green should control scab until calyx (or about 6 weeks, depending on rainfall). Difolatan will not control mildew or the rust diseases; therefore, these diseases on susceptible varieties will need additional control measures beginning at pink bud. On these cultivars the 3-qt. rate or an alternate fungicide (see green tip) is suggested. Application later than $\frac{1}{4}$ -inch green tip can produce leaf injury.  Mostly for varieties susceptible to fire blight. Use the copper sulfate during dormancy; the bordeaux-oil is best at silver tip. Difolatan, copper sulfate, and bordeaux are compatible with superior oil.
Fire blight, black rot, and blotch	COPPER SULFATE, 4 lb., or 8-8-100 BORDEAUX	
<b>GREEN TIP THROUGH TIGHT-CLUSTER</b>  Aphids Scab, powdery mildew	Systemic phosphate insecticide — plus — CYPREX 65W, $\frac{3}{8}$ to $\frac{1}{2}$ lb. — or — CYPREX 65W, $\frac{1}{4}$ lb., and Microfine wettable SULFUR, 5 lb. — or — DIKAR, 2 lb., and TRITON B1956, 3 oz. — or — BENLATE 50W, 2 to 3 oz., and CAPTAN 50W, 1 lb.	Pests tolerant to currently used pesticides are appearing. Therefore we recommend alternating pesticides during the spray program and using labelled pesticide mixes. On varieties susceptible to powdery mildew use Dikar, Benlate-captan, or include sulfur with Cyprex. It is important to provide trees with protective fungicides at 7- to 10-day intervals throughout this period. Scab and mildew control must begin at green tip. Wetting agents increase the effectiveness of Dikar against powdery mildew.  Use 2 oz. of Benlate for normal conditions and 3 oz. during severe scab pressure to deactivate scab. Never use Benlate alone. When Benlate is applied to deactivate scab lesions, combine it with protectant fungicides.
<b>PINK BUD</b>  Scab, powdery mildew, cedar-apple rust	DIKAR, 2 lb., and TRITON B1956, 3 oz. — or — BENLATE 50W, 2 or 3 oz., and MANZATE 200, or DITHANE M-45, or POLYRAM 80W, 12 oz. — or — CYPREX 65W, $\frac{1}{4}$ lb., and Microfine wettable SULFUR, 5 lb., and a rust fungicide	If the 3-qt. rate of Difolatan was used, now is the time to apply additional scab sprays.  Rust control must start in this spray. Manzate 200, Dithane M-45, Polyram, Zineb, and Ferbam are good rust fungicides. Ferbam may affect fruit finish of Golden Delicious if used after calyx.  The control of white apple leaf hoppers is most effective at petal-fall. Apply a phosphite insecticide that has had little or no past usage in the orchard, or a carbamate insecticide at a low dosage. Sevin may thin the fruit. Lanate is safest on predatory mites.

APPLICATION AND PURPOSE	MATERIALS, RATE PER 100 GALLONS OF WATER	SPECIAL SUGGESTIONS
<b>PINK BUD (continued)</b>		
Curculio, leaf roller	GUTHION (AZINPHOS METHYL) 50W, $\frac{5}{8}$ lb.	Only necessary if curculio or leaf roller is severe or if other chewing insects are present.
For fertilizing	SOLUBOR, 1 lb.	This prevents a deficiency of boron, which affects pollen germination. If ground applications of boron are made, eliminate foliar application. See Circular 1151.
<b>EARLY-BLOOM</b>		
Fire blight	STREPTOMYCIN, 50 or 100 ppm — or — STREPTOMYCIN 50 ppm plus GLYODIN or REGULAIT, 1 pt. Same as for PINK BUD	On susceptible varieties start streptomycin when the first blossoms open. Continue at 4-day intervals through bloom. Above 65° F. use 50 ppm; below 65° F., or when mixed with fungicides, use 100 ppm. Streptomycin uptake is enhanced by using spreader activators, at 1 to 2 pints per 100 gal.  Fungicide applications are not recommended at full bloom as many injure pollen and may interfere with fruit set. However, during prolonged bloom, scab, mildew, and cedar-apple rust may need control.
<b>CALYX AND FIRST COVER</b>		
Codling moth, leaf roller, curculio, aphids	IMIDAN, 1½ lb., or GUTHION (AZINPHOS METHYL) 50W, $\frac{5}{8}$ lb. — plus either — POLYRAM 80W, 2 lb. — or — DIKAR, 2 lb., and TRITON B1956, 3 oz. — or —	Apply calyx spray when $\frac{3}{4}$ of the petals have fallen, and first cover, 7 to 10 days later. Imidan may be weak for leaf roller control. If the 5-qt. rate of Difolatan was used earlier, scab control materials must now be applied. Since Polyram will not control powdery mildew, choose another fungicide on mildew-susceptible varieties.
Scab, cedar-apple rust, blotch, powdery mildew, frog-eye, quince rust	BENLATE 50W, 2 or 3 oz., and MANZATE 200, or DITHANE M-45, or POLYRAM 80W, 12 oz.	If quince rust has been a problem and the weather is wet, increase the rust fungicide to the full label rate.
Fire blight	STREPTOMYCIN, 50 or 100 ppm, depending on temperature (see early bloom) See Circular 1151.	For control of twig blight, start in the first cover with night applications every 7 days. Discontinue after July 15. Apply only to varieties susceptible to fire blight.
For thinning		Summer varieties are best thinned at petal-fall. Fall and winter varieties are best thinned according to fruit size, preferably when king fruit is 10 to 11 millimeters in diameter.
For fertilizing	SOLUBOR, 1 lb. UREA (45 percent N), 5 lb.	Add to the calyx spray if there is no ground application of boron. See Circular 1151. Use as needed in the first and third cover sprays. Do not use on Golden Delicious.

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**APPLICATION AND PURPOSE**MATERIALS, RATE PER  
100 GALLONS OF WATER**SPECIAL SUGGESTIONS****COVER SPRAYS (remainder of the season)**All insects, diseases, and  
mitesGUTHION (AZINPHOS METHYL)  
50W,  $\frac{5}{8}$  lb.  
— plus either —POLYRAM 80W, 1½ lb.  
— or —DIKAR, 2 lb., and  
TRITON BI956, 3 oz.  
— or —BENLATE 50W, 2 oz., and  
CAPTAN 50W, 1 lb.  
— or —CAPTAN 50W, 1 lb., and  
ZINEB 75W, 1 lb.

Bitter pit and Jonathan spot

CALCIUM CHLORIDE, 2 lb. or 3 lb.

**GROWTH REGULATOR SPRAYS**

To delay harvest

ALAR, 1 lb.

To advance harvest

ETHREL, 1 pint, and  
NAA, 10 ppm, and  
2,4,5-TP, 10 ppm

See Circular 1151.

To prevent preharvest drop

Apply 60 to 85 days before normal ripening date to McIntosh, Jonathan, and later varieties.

Apply one to two weeks before desired harvest date to Jonathan and spur-type Red Delicious. Apply as a dilute spray with thorough coverage. Stop-drop materials must be applied with Ethrel.

Alar applied to delay harvest acts as a stop-drop preventative. NAA and 2,4,5-TP may be applied when apples start to drop.

**PEACHES, NECTARINES, APRICOTS****DORMANT**Scale insects, red mites,  
leaf curlSUPERIOR OIL, 2 gal., and  
6-6-100 BORDEAUX  
— or —Liquid LIME SULFUR, 5 gal.  
— or —FERBAM 76W, 2 lb.  
— or —  
ZINEB 75W, 2 lb.

The oil controls scale and mites; the fungicide prevents the development of leaf curl. Thorough coverage BEFORE buds start to swell in the spring is critically important for control of leaf curl.

Phygon (dichlorone) 50W, 1 lb., is also effective against leaf curl. Phygon is not compatible with oil.

**PINK BUD**Tarnished plant bug,  
curculio, oriental fruit mothGUTHION (AZINPHOS METHYL)  
50W,  $\frac{5}{8}$  lb., or  
SEVIN 50W, 2 lb., or  
LANNATE L, 1½ pt.

Apply when buds show pink. Must not be applied when any blossoms are open, as this will kill honey bees. Guthion is best for curculio.

**APPLICATION AND PURPOSE****SPECIAL SUGGESTIONS****EARLY TO FULL BLOOM**

Brown rot blossom blight  
Try to make two applications, one in early bloom and one in full bloom. Do not use insecticides after first blossoms open.

BENLATE 50W, 4 oz., plus CAPTAN, 1½ lb.  
— or —  
Microfine wettable SULFUR, 3 lb., and PHYGON (DICHLONE) 50W, ¼ lb.  
Fungi tolerant to currently used fungicides (Benlate) are appearing. Therefore we recommend alternating fungicides in the spray program and using suggested fungicide mixes. Never use Benlate alone. Always combine it with protectant fungicides.

**PETAL-FALL THROUGH COVER SPRAYS**

Curculio, oriental fruit moth, stinkbugs, red-banded leaf roller, and catfacing insects  
GUTHION (AZINPHOS METHYL) 50W, ½ lb., or IMIDAN, 1½ lb.  
— plus —

Brown rot and peach scab  
Microfine wettable SULFUR, 6 lb.

Where peach scab has been a problem, continue sulfur or Benlate up to 40 days before harvest; after this period, another fungicide may be used. Sulfur and Benlate are the only fungicides that will control peach scab.  
A complete application is needed about every 14 days through this period. Normally, insecticides are not used after the first 2nd-broad curculio spray. Watch harvest restrictions. See borer control section.

When warm, rainy weather prevails during early to mid-summer, bacterial spot may become serious. The combination of captan and Cyprex added to the cover sprays helps alleviate the problem.

Apply as a dilute spray with full coverage just before pit hardening, when the peaches loosen and can be mechanically thinned. Alar advances harvest 3 to 5 days and promotes uniform ripening.

CAPTAN 50W, 1 lb., and CYPREX 65W, ½ lb.

ALAR, 1½-2 lb.

To advance harvest

**PREHARVEST AND POSTHARVEST FUNGICIDES**

Brown rot  
BENLATE 50W, 4 oz., plus CAPTAN 50W, 1½ lb.  
— or —  
CAPTAN 50W, 2 lb.  
BOTRAN 50W, 2 lb.

Brown rot becomes increasingly important as fruit begins to ripen; therefore, begin a 7-day spray schedule starting 4 weeks prior to harvest. Benlate, captan, Phygon (dichlonel), and sulfur all control this disease. During hot weather, sulfur applied just before harvest may reduce fruit finish. Alternate fungicides and observe harvest restrictions.

Botran is specific for Rhizopus rot and is best added to the hydrocooler water as a postharvest dip.

**BORER CONTROL**

Peach borer, lesser peach borer, American plum borer  
THIODAN 50W, 1½ lb., or GUTHION (AZINPHOS METHYL) 50W, ½ lb., or LORSBAN 4E, 1½-2 pt.

Make two to four applications but adhere to harvest restrictions on the different varieties. July and August are the critical months. Thorough coverage of all wounds and gummy areas of all major branches is essential. This spray must be applied with a hand gun instead of the mist-blower type sprayer. Lorsban should be applied to peach tree trunks up to scaffold limbs.

MATERIALS, RATE PER  
100 GALLONS OF WATER

APPLICATION AND PURPOSE	MATERIALS, RATE PER 100 GALLONS OF WATER	SPECIAL SUGGESTIONS
<b>PLUMS</b>		
<b>DELAYED DORMANT</b> Scale insects, red mites, black knot	SUPERIOR OIL, 2 gal.	Apply before buds begin to open. The oil controls scale and mites. Prune out and burn all black knots during the dormant period.
<b>PETAL-FALL THROUGH SECOND COVER</b> Curculio, brown rot	GUTHION (AZINPHOS METHYL) 50W, $\frac{5}{8}$ lb. — plus either — BENLATE 50W, 4 oz., plus CAPTAN 50W, $1\frac{1}{2}$ lb. — or — CAPTAN 50W, 2 lb.	Apply a spray every 10 to 14 days for three times, starting at petal-fall. Add a miticide if needed. For borer control follow the suggestions given under peaches. Alternate fungicides during the spray program.
<b>ADDITIONAL COVERS</b> Brown rot	BENLATE 50W, 4 oz., plus CAPTAN 50W, $1\frac{1}{2}$ lb. — or — CAPTAN 50W, 2 lb.	Start these sprays about 3 weeks before harvest and apply about every 7 days. Alternate fungicides during the spray program.
		<b>PEARS</b>
<b>DELAYED DORMANT</b> Pear psylla, scale insects, leaf spot	SUPERIOR OIL, 2 gal., and FERBAM 76W, 2 lb.	Apply just before buds begin to open.
<b>BLOOM</b> Fire blight	STREPTOMYCIN, 100 ppm	Three sprays 4 days apart, starting with the first blossoms. May be applied during the day for effective control. Be sure to continue on late blossoms.
<b>CALYX THROUGH COVER SPRAYS</b> Codling moth, curculio, leaf spot, scab	GUTHION (AZINPHOS METHYL) 50W, $\frac{5}{8}$ lb. — plus either — CAPTAN 50W, $1\frac{1}{2}$ lb., or FERBAM 76W, $1\frac{1}{2}$ lb. STREPTOMYCIN, 100 ppm	Start calyx spray as soon as the petals have fallen and continue at 12- to 14-day intervals for at least 3 covers. Later, apply Guthion alone if psylla nymphs are visible on water sprouts.
Fire blight		Start at about the first cover and continue at 7-day intervals until about July 15. More effective if applied at night and used alone.

## CHERRIES

APPLICATION AND PURPOSE	MATERIALS, RATE PER 100 GALLONS OF WATER	SPECIAL SUGGESTIONS
<b>DORMANT</b> Scale insects	SUPERIOR OIL, 2 gal.	Apply before the buds open.
<b>FIRST AND SECOND COVER SPRAYS</b> Brown rot, cherry leaf spot, curling, slugs	GUTHION (AZINPHOS METHYL) 50W, $\frac{5}{8}$ lb. — plus either — CYPREX 65W, $\frac{1}{2}$ lb. — or — BENLATE 50W, 4 oz., plus CAPTAN 50W, 1 lb.	Start right after the shucks have fallen with the first cover. Apply a second cover spray 10 days later. Alternate fungicides during the spray program.

## ADDITIONAL SPRAYS

Cherry leaf spot	CYPREX 65W, $\frac{1}{2}$ lb., or BENLATE 50W, $\frac{1}{2}$ lb.	Apply immediately after harvest. One or two sprays should be adequate. Spray more if there is more evidence of yellow leaf. A phosphate insecticide may be needed if insects attack leaves. Borers should be controlled as suggested for peaches. Alternate fungicides during the spray program.
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See the section on peaches, nectarines, and apricots for suggested borer sprays.

**mite control:** It is important to avoid using insecticides that are toxic to predatory mites. If phosphate insecticides will kill plant-feeding mites, they will also kill predaceous mites. Miticides, however, may be more selective, and the following miticides can be used without killing predatory mites: KELTHANE, OMITE, OVEX, PLICTRAN, TEDION, and VENDEX. The miticides CARZOL and MOROCIDE will kill all mites. Some fungicides, such as DIKAR and KARATHANE, give mite suppression and allow good predatory mite survival. BENLATE suppresses both types of mites. Where red mites have been a problem, use oil in the dormant spray.

**RESTRICTIONS ON PESTICIDES USED ON TREE FRUITS:** The following restrictions are those in effect as of December 1, 1979. Growers are urged to follow directions on the manufacturer's current label at all times. When mixing several pesticides in the same tank, use the time restriction with the longest interval.

Pesticide	Number of days between last application and harvest					Number of days between last application and harvest					
	Apples	Pears	Cherries	Peaches	Plums	Pesticide	Apples	Pears	Cherries	Peaches	Plums
Benlate ...	0	0	0	0	0	Manzate 200 .....	30	15	... 7D	21E	...
Bordeaux ...	0	0	0	0	0	Mesurol .....	...	...	...	...	...
Boftran ...	...	0	1	1	1	Morocide .....	60D	60D	...	...	...
Captan ...	0	0	0	0	0	Omite .....	7D	7D	...	14C	28C
Carzol ...	7	7	...	...	...	Orex .....	...	...	...	7	...
Copper sulfate ...	0	0	...	...	...	Parathion .....	14	14	14	14	14
Cyprex ...	7	7	0	15	...	Phaltan (folpet) .....	0	...	...	...	...
Diazinon ...	14	14	10	20	10	Phosphamidon .....	30	...	...	...	...
Difolatan ...	A	A	...	...	...	Phygon (dichlone) .....	...	...	3	7	3
Dikar ...	21	21	...	...	...	Plictran .....	14E	...	E	E	E
Dithane M-45 ...	21	21	...	...	...	Polyram .....	15	...	...	...	...
Ferbam ...	7	7	0	21	7	Sevin .....	1	1	1	1	1
Glyodin ...	0	0	7	0	...	Streptomycin .....	50	30	...	...	...
Guthion (aziphos methyl)	15	15	15	21	15	Sulfur .....	0	0	0	0	0
Imidan ...	7	7	7	14	7	Systox .....	21	21	...	30	30
Karathane ...	21	21	...	45	...	Tedion .....	0E	0E	...	0C	0C
Kelthane ...	7	7	7	14	7	Thiodan .....	...	...	...	21C	30C
Lannate ...	8	...	...	4	0	Thiram .....	0	...	...	7	...
Lime sulfur ...	0	0	0	0	0	Trithion .....	30	30	...	...	...
Lorsban ...	...	...	3	3	7	Vendex .....	14D	15	...	30	30
Malathion ...	3	3	3	3	7	Zineb .....	15	7	...	...	...

... Not recommended.

A. Dormant application up until  $\frac{1}{2}$ -inch green.

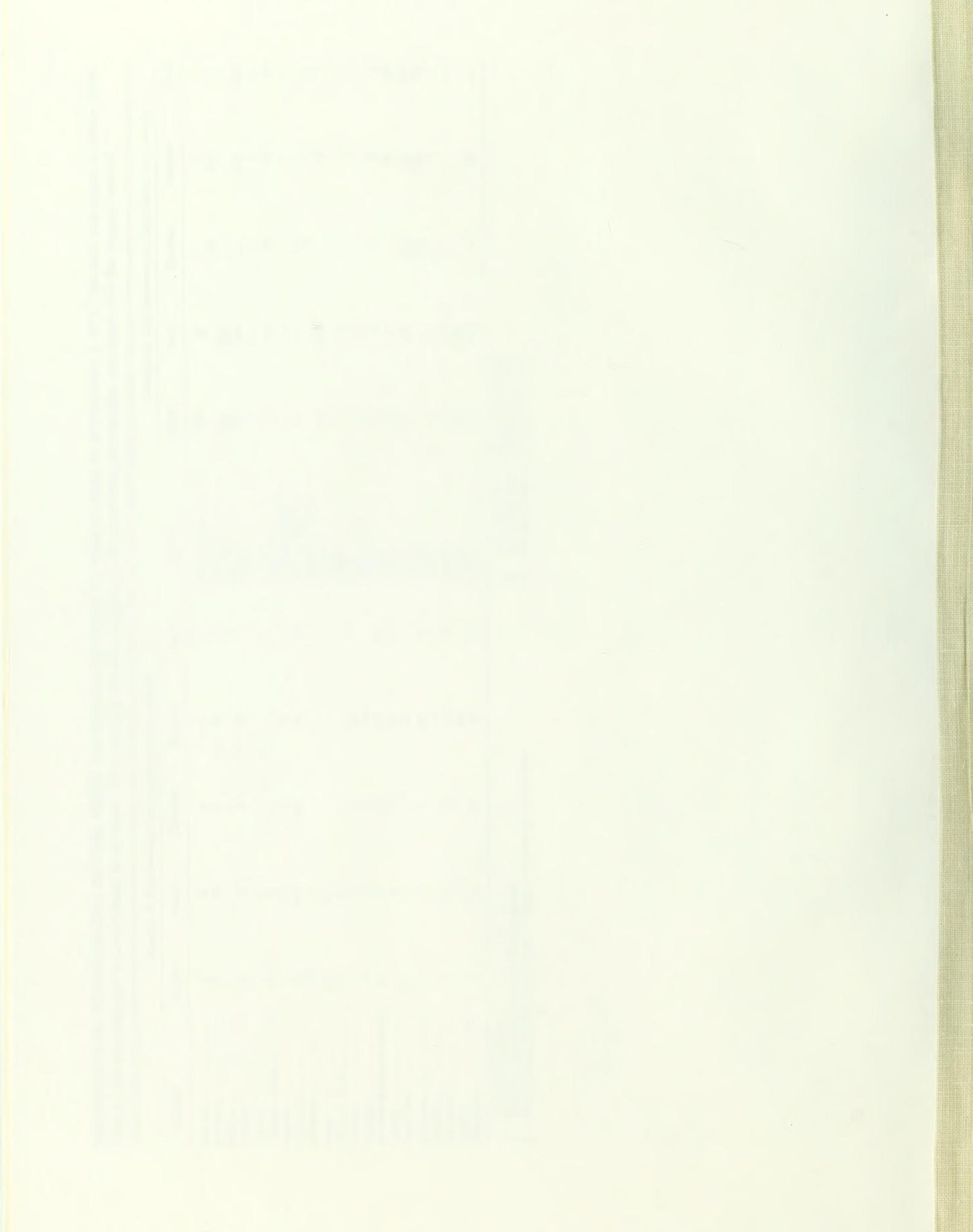
B. Do not apply when fruit is present — apply prebloom or postharvest.

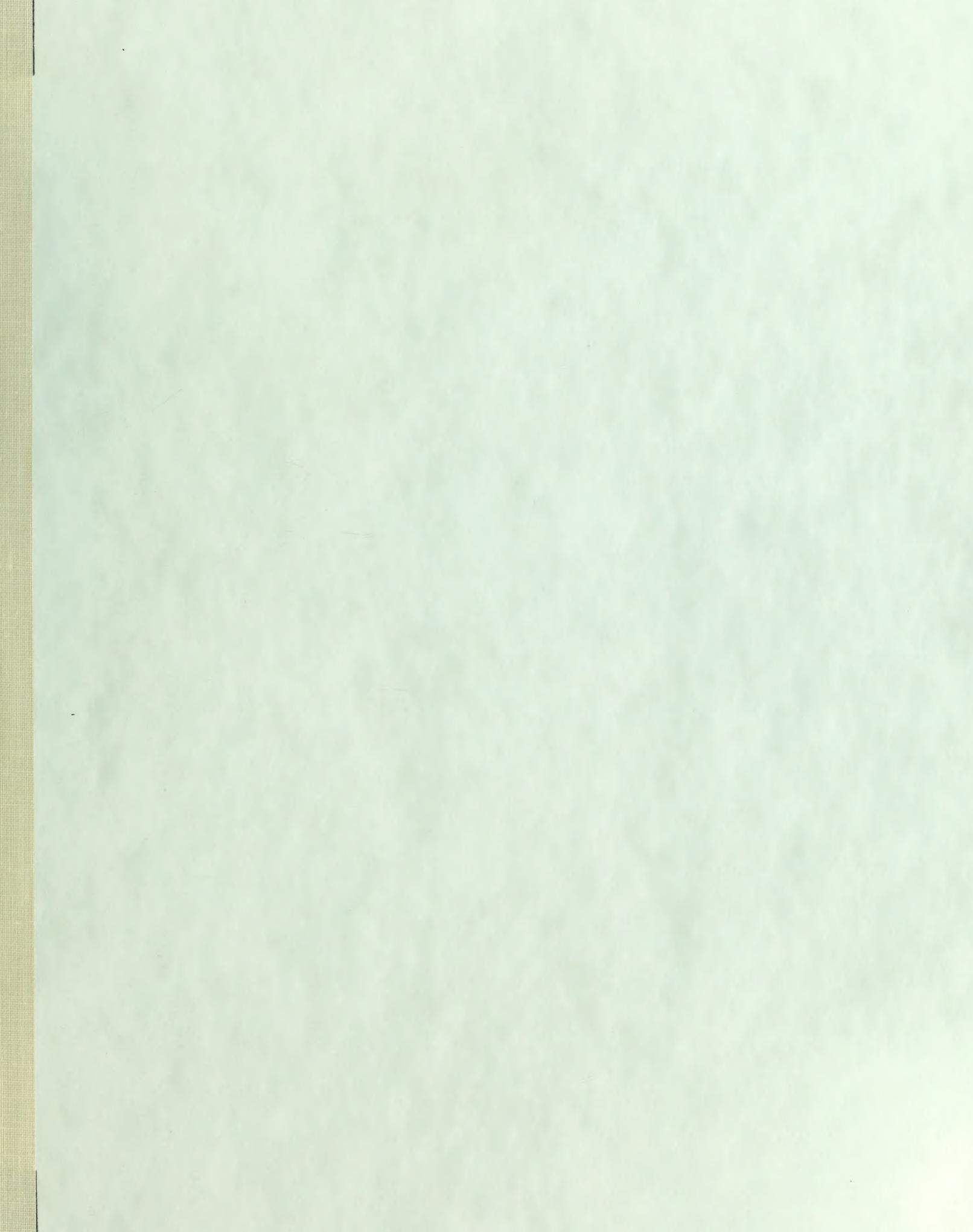
C. Not more than 2 applications to fruit.

D. Not more than 3 applications to fruit.

E. Not more than 4 applications to fruit.







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